



Home Inspection Services Newsletter

September, 2011

Lead Article: **What is a Post-Tension Slab?**

A **post-tension slab** is often referred to as an engineered slab. Years ago, in areas where soils were expansive (subject to movement when wet) or unstable, foundation slabs had to be specially designed by engineers. Slabs were developed to prevent differential settlement (one side of the house sinking) and to minimize cracking. “Engineered” foundation slabs were often designed with steel cables crisscrossing the slab. The high strength steel cables were then placed under perpetual tension. **The picture above shows the cables (red lines) before the foundation is poured.** Today, cost for “post-tension” slabs has dropped and “post-tension” slabs are standard in most new home construction.

How post-tensioning works:

- **Before the concrete is poured**, tendons crisscross the slab at 4 foot intervals. Tendons are high strength cables (comprised of 7 strands of steel that are greased and encased in plastic). The steel cables are not in contact with the concrete but slide inside the plastic tubing. The tendons should be relatively straight (no kinks) and centered in the concrete. Concrete thickness varies based upon the house design but is generally 8 to 10 inches thick.
- **Typically 3 to 10 days after the concrete is poured** (still green), hydraulic jacks apply 33,000 PSI to each cable. Each cable is stretched about 4 inches (in a 50 foot length). The ends of the cables are wedged in place to ensure that the cables remain “in tension forever”. After wedging, the end of the steel cables are cut, greased, and the openings are grouted. Looking closely at the perimeter of a post tension slab, you’ll generally see grouted circles about every 4 feet.
- Post tension slabs are stamped in the garage **“Post Tension Slab – Do not cut or drill”**.

Cracking in post tension slabs generally occurs before the cables are stressed. These cracks can be related to the setting up of the concrete, issues with the specific batch of the concrete, or waiting too long to tension the cables. If cracking occurs, foundation engineers generally allow repairs (commonly opening up and cleaning the crack before applying an engineered concrete epoxy).

Monthly Question: **Can I change to a gas range?**

I am often asked this question at a home inspection.

The answer is always **yes (of course, cost can vary significantly)**.

1. If there is a gas pipe behind the electric range just make sure the gas piping size will support the BTU demand of the intended range (the appliance store can help with this).
2. If there is natural gas on the property, a plumber can determine the size and routing of gas piping. This can be expensive if the meter is on the other side of the house. We spent \$2500 at our house to accomplish this.
3. If there is no natural gas on the property, propane tanks and piping can be added.

Maintenance Item for September: **HVAC Filters**

Change your AC filters monthly. Your AC system will run more efficiently and use less electricity. I prefer the pleated filter that cost about \$3.00. A dirty filter will make you AC system work harder. **A very dirty filter may slow air flow enough to cause the evaporator coils to ice up!**

Safety Tip: **Garage door Balance**

When not attached to the electric opener, garage doors should glide up and down and **stay in the open position when fully opened**. Test your overhead doors by releasing them and operating by hand. Doors that do not stay open are a safety hazard. Think of having to drive out of the garage when the electric opener is broken or in the case of a power outage. Always use a professional to service an overhead garage door.

Let our experience work for you!



Daryl Gates



Mark Andrews



Lauren Andrews